Anti-Measles Virus ELISA (IgM)

- **Sensitive detection of specific IgM antibodies against measles virus**
- **Use of measles virus lysates of the Edmonstron strain**
- **Fully automated processing and evaluation**

Technical data

Antigen	Inactivated cell lysate of vero cells infected with measles virus of the Edmonston strain
Calibration	Semiquantitative; calculation of a ratio from the extinction of the control or sample and the extinction of the calibrator
Result interpretation	EUROIMMUN recommends interpreting results as follows: Ratio < 0.8: negative Ratio ≥ 0.8 to < 1.1: borderline Ratio ≥ 1.1: positive
Sample dilution	Serum or plasma, 1 : 101 in sample buffer
Reagents	Ready for use, with the exception of the wash buffer (10x); colour-coded solutions, in most cases exchangeable with those in other EUROIMMUN ELISA kits
Test procedure	30 min / 30 min / 15 min, room temperature, fully automatable
Measurement	450 nm, reference wavelength between 620 nm and 650 nm
Test kit format	96 break-off wells; kit includes all necessary reagents
Order number	**EI 2610-9601 M**
Related products	EI 2610-9601-4 M Anti-Measles Virus NP ELISA (IgM) EI 2610-9601-2 G Anti-Measles Virus ELISA 2.0 (IgG) EI 2610-9601-1 G Avidity: Anti-Measles Virus ELISA (IgG) EI 2610-9601-L G CSF: Anti-Measles Virus ELISA (IgG)

Clinical significance

The measles virus (MV) belongs to the Morbilliviruses, a group of viruses of the Paramyxoviridae family. The virus causes an acute feverish illness which occurs mainly in childhood and is very infectious. In 1999, measles still caused worldwide 873,000 deaths per year. Generally, the disease has become more seldom because of vaccination, especially in the western hemisphere. However, measles epidemics are currently occurring more frequently in some countries. Individuals acutely infected with the virus exhibit a wide range of clinical symptoms ranging from a characteristic mild self-limiting infection to death. MV infections are characterised by an incubation period of about 10 days, flu-like symptoms with fever, malaise, catarrh of the upper respiratory tract, cough, congestion and conjunctivitis. Soon afterwards the measles rash, a typical exanthema, appears first near the ears, then on the forehead, in the face and over the rest of the body. Antibodies against measles virus can be found in the serum of almost all patients during and after a measles virus infection. They are a reliable marker in suspected measles cases. IgM antibodies are produced soon after the onset of symptoms and can be measured using serological methods. 50% of patients present IgM antibodies within three days of disease onset, more than 90% within 10 days after occurrence of the rash.

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Reference range

Levels of anti-measles virus antibodies (IgM) were determined in 300 healthy blood donors using the EUROIMMUN ELISA. With a cut-off of ratio 1.0, 0.3% of the blood donors were anti-measles virus positive (IgM).

Reproducibility

The reproducibility of the test was investigated by determining the intra- and inter-assay coefficients of variation using three samples. The intra-assay CVs are based on 20 determinations and the inter-assay CVs on four determinations performed in six different test runs.

	Intra-assay variation, n = 20		Inter-assay variation, n = 4 x 6	
Sample	Mean value (ratio)	CV (%)	Mean value (ratio)	CV (%)
1	2.6	7.9	2.4	8.0
2	4.6	2.5	4.1	4.4
3	7.0	2.3	6.6	4.4

Sensitivity and specificity

72 clinically characterised patient samples from a quality assessment provider (INSTAND e.V., Germany) were investigated using the EUROIMMUN Anti-Measles Virus ELISA (IgM). The specificity was 98%, with a sensitivity of 100% (borderline samples not included).

n = 72		Target from QA institutes		
		positive	borderline	negative
EUROIMMUN Anti-Measles Virus ELISA (IgM)	positive	26	0	1
	borderline	0	0	1
	negative	0	0	44

Cross reactivity

The quality of the antigen used ensures a high specificity of the ELISA. Samples from patients with infections caused by different pathogens were investigated with the Anti-Measles Virus ELISA (IgM):

Antibodies against	n	Anti-Measles Virus ELISA (IgM) positive results	Antibodies against	n	Anti-Measles Virus ELISA (IgM) positive results
Borrelia burgdorferi	10	0%	**Parvovirus B19**	9	0%
CMV	7	0%	**Rubella virus**	10	0%
EBV-CA	17	0%	***Toxoplasma gondii***	10	0%
Mumps virus	8	0%	**VZV**	5	0%

Literature

1. Bellini WJ, et al. **The challenges and strategies for laboratory diagnosis of measles in an international setting.** J Infect Dis 187:283-290 (2003).
2. Ota MO, et al. **Emerging diseases: measles.** J Neurovirol 11(5):447-454 (2005).
3. Brady AM, et al. **Serosurveillance for Measles and Rubella.** Vaccines (Basel) 12(7):816 (2024).
4. Hübschen JM, et al. **Challenges of measles and rubella laboratory diagnostic in the era of elimination.** Clin Microbiol Infect 23(8):511-515 (2017).

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